WHAT IS CLAIMED IS:

[C001] 1. A method for detecting an atherosclerotic plaque area of a subject, the method comprising:

administering into the subject a predetermined dose of at least an MRI contrast-enhancing agent that comprises an extended poly(amino acid) conjugated to chelator moieties that form coordination complexes with paramagnetic ions;

obtaining MR images of and acquiring MR signals coming from the subject's blood-vessel wall area surrounding a suspected plaque before and after the step of administering the MRI contrast-enhancing agent into the subject; and

comparing the MR images and MR signals obtained before the step of administering to the MR images and MR signals obtained after the step of administering to identify the blood vessel wall area having an increased MR image contrast and an increased MR signals, which indicate a presence of atherosclerotic plaque.

[C002] 2. The method according to claim 1, wherein the poly(amino acid) is selected from the group consisting of homopolymers and copolymers of amino acid residues.

[C003] 3. The method according to claim 1, wherein the poly(amino acid) is poly-L-lysine.

[C004] 4. The method according to claim 1, wherein the poly(amino acid) is poly(glutamic acid).

[C005] 5. The method according to claim 1, wherein the poly(amino acid) comprises a number of amino acid residues in a range from about 100 to about 650.

[C006] 6. The method according to claim 1, wherein the poly(amino acid) has a persistence length in a range from about 100 to about 600 angstroms.

[C007] 7. The method according to claim 1, wherein the poly(amino acid) is selected from the group consisting of polyhistidine, polyarginine, polyasparagine, polyglutamine, and copolymers of at least two types of amino acids selected from the group consisting of lysine, histidine, arginine, asparagine, and glutamine.

[C008] 8. The method according to claim 1, wherein the poly(amino acid) is a copolymer of glutamic acid and aspartic acid.

[C009] 9. The method according to claim 1, wherein the poly(amino acid) is a copolymer of at least a first type of amino acid selected from the group consisting of lysine, histidine, arginine, asparagine, and glutamine; and at least a second type of amino acid selected from the group consisting of glutamic acid and aspartic acid.

[C010] 10. The method according to claim 1, wherein the chelator moieties are selected from the group consisting of diethylene triamine pentaacetic acid; 1,4,7,10-tetraazacyclododecane-N,N',N",N'"-tetraacetic acid; p-isothiocyanatobenzyl-1,4,7,10-tetraazacyclododecane-1,4,7,10-tetraacetic acid; 1,4,7,10- tetraazacyclododecane-N,N',N"-triacetic acid; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(2-propionic acid); 3,6,9-triaza-12-oxa-3,6,9-tricarboxymethylene-10-carboxy-13-phenyl-tridecanoic acid; 1,4,7-triazacyclononane-N,N',N"-triacetic acid; 1,4,8,11-tetraazacyclotetradecane-N,N',N",N'"-tetraacetic acid; triethylene tetraamine hexaacetic acid; trans-1,2-diaminohexane tetraacetic acid; 1,4,7,10-tetraazacyclododecane-1-(2-hydroxypropyl)4,7,10-triacetic acid; trans-cyclohexane-diamine tetraacetic acid; trans(1,2)-cyclohexane dietylene triamine pentaacetic acid; 1-oxa-4,7,10-triazacyclododecane-N,N',N"-triacetic acid; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis{3-(4-carboxyl)-butanoic acid}; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(acetic acid-methyl amide); 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(methylene phosphonic acid); and derivatives thereof.

[C011] 11. The method according to claim 1, wherein the chelator moieties are diethylene triamine pentaacetic acid.

[C012] 12. The method according to claim 1, wherein at least 90 percent of residues of the poly(amino acid) are conjugated with the chelator moieties.

[C013] 13. The method according to claim 1, wherein at least 95 percent of residues of the poly(amino acid) are conjugated with the chelator moieties.

[C014] 14. The method according to claim 12, wherein the chelator moieties are diethylene triamine pentaacetic acid.

[C015] 15. The method according to claim 1, wherein the paramagnetic ions are selected from the group consisting of ions of transition metal elements, rare earth metal elements, and actinide elements.

[C016] 16. The method according to claim 1, wherein the paramagnetic ions are selected from the group consisting of Gd^{3+}, Dy^{3+}, and a mixture thereof.

[C017] 17. The method according to claim 1, wherein said at least an MRI contrast-enhancing agent is administered into the subject at a dose in a range from about 0.01 to about 0.5 mole Gd/kg od body weight of the subject.

[C018] 18. The method according to claim 1, wherein the MR images and the MR signals obtained after the step of administering are obtained within 48 hours after said administering.

[C019] 19. A method for detecting an atherosclerotic plaque area of a subject, the method comprising:

administering into the subject a predetermined dose of at least an MRI contrast-enhancing agent that comprises an extended poly(amino acid) conjugated to chelator moieties that form coordination complexes with paramagnetic ions, wherein a degree of conjugation is at least 90 percent;

obtaining MR images of and acquiring MR signals coming from the subject's blood-vessel wall area surrounding a suspected plaque before and after the step of administering the MRI contrast-enhancing agent into the subject; and

comparing the MR images and MR signals obtained before the step of administering to the MR images and MR signals obtained after the step of administering to identify the blood vessel wall area having an increased MR image contrast and an increased MR signals, which indicate a presence of atherosclerotic plaque;

wherein the poly(amino acid) is selected from the group consisting of poly-L-lysine, polyhistidine, polyarginine, polyasparagine, polyglutamine, poly(glutamic acid), poly(aspartic acid), and copolymers of at least two types of amino acids selected from the group consisting of lysine, histidine, arginine, asparagine, glutamine, glutamic acid, and aspartic acid; the poly(amino acid) has a number of amino acid residues in a range from about 100 to about 650; the chelator moieties are selected from the group consisting of diethylene triamine pentaacetic acid; 1,4,7,10-tetraazacyclododecane-N,N',N",N'"-tetraacetic acid; p-isothiocyanatobenzyl-1,4,7,10-tetraazacyclododecane-1,4,7,10-tetraacetic acid; 1,4,7,10-tetraazacyclododecane-N,N',N"-triacetic acid; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(2-propionic acid); 3,6,9-triaza-12-oxa-3,6,9-tricarboxymethylene-10-carboxy-13-phenyl-tridecanoic acid; 1,4,7-triazacyclononane-N,N',N"-triacetic acid; 1,4,8,11-tetraazacyclotetradecane-N,N',N",N'"-tetraacetic acid; triethylene tetraamine hexaacetic acid; trans-1,2-diaminohexane tetraacetic acid; 1,4,7,10-tetraazacyclododecane-1-(2-hydroxypropyl)4,7,10-triacetic acid; trans-cyclohexane-diamine tetraacetic acid; trans(1,2)-cyclohexane dietylene triamine pentaacetic acid; 1-oxa-4,7,10-triazacyclododecane-N,N',N"-triacetic acid; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis{3-(4-carboxyl)-butanoic acid}; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(acetic acid-methyl amide); 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(methylene phosphonic acid); and derivatives thereof; the MRI contrast-enhancing agent is administered into the subject at a dose in a range from about 0.01 to about 0.5 mole Gd/kg of body weight of the subject.

[C020] 20. A method for assessing an effectiveness of a prescribed regimen for treating atherosclerosis, the method comprising:

obtaining at least a base-line MR image of and acquiring a base-line MR signal from a subject's blood-vessel wall area surrounding a suspected atherosclerotic plaque;

administering a first time into the subject a predetermined dose of at least an MRI contrast-enhancing agent that comprises an extended poly(amino acid) conjugated to chelator moieties that form coordination complexes with paramagnetic ions;

obtaining pre-treatment MR images of and acquiring pre-treatment MR signals coming from the subject's blood-vessel wall area surrounding the suspected atherosclerotic plaque after administering the predetermined dose of the MRI contrast-enhancing agent into the subject;

treating an atherosclerotic condition of the subject with a prescribed regimen;

administering a second time into the subject the predetermined dose of said at least an MRI contrast-enhancing agent;

obtaining post-treatment MR images of and acquiring post-treatment MR signals coming from the same blood-vessel wall area as in the step of obtaining pre-treatment MR images and acquiring pre-treatment MR signals; and

comparing post-treatment MR images and post-treatment MR signals to pre-treatment MR images and pre-treatment MR signals to assess the effectiveness of the prescribed regimen;

wherein a decrease in a contrast of MR images and in MR signals indicates that the prescribed regiment is effective.

[C021] 21. The method according to claim 20, wherein the poly(amino acid) is selected from the group consisting of homopolymers and copolymers of amino acid residues.

[C022] 22. The method according to claim 20, wherein the poly(amino acid) is poly-L-lysine.

[C023] 23. The method according to claim 20, wherein the poly(amino acid) is poly(glutamic acid).

[C024] 24. The method according to claim 20, wherein the poly(amino acid) is selected from the group consisting of polyhistidine, polyarginine, polyasparagine, polyglutamine, and copolymers of at least two types of amino acids selected from the group consisting of lysine, histidine, arginine, asparagine, and glutamine.

[C025] 25. The method according to claim 20, wherein the poly(amino acid) is a copolymer of glutamic acid and aspartic acid.

[C026] 26. The method according to claim 20, wherein the poly(amino acid) is a copolymer of at least a first type of amino acid selected from the group consisting of lysine, histidine, arginine, asparagine, and glutamine; and at least a second type of amino acid selected from the group consisting of glutamic acid and aspartic acid.

[C027] 27. The method according to claim 20, wherein the chelator moieties are selected from the group consisting of diethylene triamine pentaacetic acid; 1,4,7,10-tetraazacyclododecane-N,N',N",N'"-tetraacetic acid; p-isothiocyanatobenzyl-1,4,7,10-tetraazacyclododecane-1,4,7,10-tetraacetic acid; 1,4,7,10- tetraazacyclododecane-N,N',N"-triacetic acid; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(2-propionic acid); 3,6,9-triaza-12-oxa-3,6,9-tricarboxymethylene-10-carboxy-13-phenyl-tridecanoic acid; 1,4,7-triazacyclononane-N,N',N"-triacetic acid; 1,4,8,11-tetraazacyclotetradecane-N,N',N",N'"-tetraacetic acid; triethylene tetraamine hexaacetic acid; trans-1,2-diaminohexane tetraacetic acid; 1,4,7,10-tetraazacyclododecane-1-(2-hydroxypropyl)4,7,10-triacetic acid; trans-cyclohexane-diamine tetraacetic acid; trans(1,2)-cyclohexane dietylene triamine pentaacetic acid; 1-oxa-4,7,10-triazacyclododecane-N,N',N"-triacetic acid; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis{3-(4-carboxyl)-butanoic acid}; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(acetic acid-methyl amide); 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(methylene phosphonic acid); and derivatives thereof.

[C028] 28. The method according to claim 20, wherein the chelator moieties are diethylene triamine pentaacetic acid.

[C029] 29. The method according to claim 20, wherein at least 90 percent of residues of the poly(amino acid) are conjugated with the chelator moieties.

[C030] 30. The method according to claim 20, wherein at least 95 percent of residues of the poly(amino acid) are conjugated with the chelator moieties.

[C031] 31. The method according to claim 29, wherein the chelator moieties are diethylene triamine pentaacetic acid.

[C032] 32. The method according to claim 20, wherein the paramagnetic ions are selected from the group consisting of ions of transition metal elements, rare earth metal elements, and actinide elements.

[C033] 33. The method according to claim 20, wherein the paramagnetic ions are selected from the group consisting of Gd^{3+}, Dy^{3+}, and a mixture thereof.

[C034] 34. The method according to claim 20, wherein said at least an MRI contrast-enhancing agent is administered into the subject at a dose in a range from about 0.01 to about 0.05 mole Gd/kg od body weight of the subject.

[C035] 35. The method according to claim 20, wherein the MR images and the MR signals obtained after the step of administering are obtained within 48 hours after said administering.

[C036] 36. A method for assessing an effectiveness of a prescribed regimen for treating atherosclerosis, the method comprising:

obtaining at least a base-line MR image of and acquiring a base-line MR signal from a subject's blood-vessel wall area surrounding a suspected atherosclerotic plaque;

administering a first time into the subject a predetermined dose of at least an MRI contrast-enhancing agent that comprises an extended poly(amino acid) conjugated to chelator moieties that form coordination complexes with paramagnetic ions, wherein a degree of conjugation is at least 90 percent;

obtaining pre-treatment MR images of and acquiring pre-treatment MR signals coming from the subject's blood-vessel wall area surrounding the suspected

atherosclerotic plaque after administering the predetermined dose of the MRI contrast-enhancing agent into the subject;

treating an atherosclerotic condition of the subject with a prescribed regimen;

administering a second time into the subject the predetermined dose of said at least an MRI contrast-enhancing agent;

obtaining post-treatment MR images of and acquiring post-treatment MR signals coming from the same blood-vessel wall area as in the step of obtaining pre-treatment MR images and acquiring pre-treatment MR signals; and

comparing post-treatment MR images and post-treatment MR signals to pre-treatment MR images and pre-treatment MR signals to assess the effectiveness of the prescribed regimen;

wherein a decrease in a contrast of MR images and in MR signals indicates that the prescribed regiment is effective; and wherein the poly(amino acid) is selected from the group consisting of poly-L-lysine, polyhistidine, polyarginine, polyasparagine, polyglutamine, poly(glutamic acid), poly(aspartic acid), and copolymers of at least two types of amino acids selected from the group consisting of lysine, histidine, arginine, asparagine, glutamine, glutamic acid, and aspartic acid; the poly(amino acid) has a number of amino acid residues in a range from about 100 to about 650; the chelator moieties are selected from the group consisting of diethylene triamine pentaacetic acid; 1,4,7,10-tetraazacyclododecane-N,N',N",N'"-tetraacetic acid; p-isothiocyanatobenzyl-1,4,7,10-tetraazacyclododecane-1,4,7,10-tetraacetic acid; 1,4,7,10- tetraazacyclododecane-N,N',N"-triacetic acid; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(2-propionic acid); 3,6,9-triaza-12-oxa-3,6,9-tricarboxymethylene-10-carboxy-13-phenyl-tridecanoic acid; 1,4,7-triazacyclononane-N,N',N"-triacetic acid; 1,4,8,11-tetraazacyclotetradecane-N,N',N",N'"-tetraacetic acid; triethylene tetraamine hexaacetic acid; trans-1,2-diaminohexane tetraacetic acid; 1,4,7,10-tetraazacyclododecane-1-(2-hydroxypropyl)4,7,10-triacetic acid; trans-cyclohexane-diamine tetraacetic acid; trans(1,2)-cyclohexane dietylene triamine pentaacetic acid; 1-oxa-4,7,10-triazacyclododecane-N,N',N"-triacetic acid; 1,4,7,10-tetraazacyclododecane-1,4,7,10-

tetrakis{3-(4-carboxyl)-butanoic acid}; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(acetic acid-methyl amide); 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(methylene phosphonic acid); and derivatives thereof; the MRI contrast-enhancing agent is administered into the subject at a dose in a range from about 0.01 to about 0.5 mole Gd/kg of body weight of the subject.

[C037] 37. An MRI contrast-enhancing agent comprising a poly(amino acid) conjugated with chelating moieties that form coordination complexes with paramagnetic ions; wherein the poly(amino acid) is selected from the group consisting of polyhistidine, polyarginine, polyasparagine, polyglutamine, and copolymers of at least two types of amino acids that are selected from the group consisting of lysine, histidine, arginine, asparagine, and glutamine; and wherein at least about 90 percent of amino acid residues of the the poly(amino acid) are conjugated with the chelating moieties.

[C038] 38. The MRI contrast-enhancing agent according to claim 37, wherein the chelating moieties are selected from the group consisting of diethylene triamine pentaacetic acid; 1,4,7,10-tetraazacyclododecane-N,N',N",N'"-tetraacetic acid; p-isothiocyanatobenzyl-1,4,7,10-tetraazacyclododecane-1,4,7,10-tetraacetic acid; 1,4,7,10- tetraazacyclododecane-N,N',N"-triacetic acid; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(2-propionic acid); 3,6,9-triaza-12-oxa-3,6,9-tricarboxymethylene-10-carboxy-13-phenyl-tridecanoic acid; 1,4,7-triazacyclononane-N,N',N"-triacetic acid; 1,4,8,11-tetraazacyclotetradecane-N,N',N",N'"-tetraacetic acid; triethylene tetraamine hexaacetic acid; trans-1,2-diaminohexane tetraacetic acid; 1,4,7,10-tetraazacyclododecane-1-(2-hydroxypropyl)4,7,10-triacetic acid; trans-cyclohexane-diamine tetraacetic acid; trans(1,2)-cyclohexane dietylene triamine pentaacetic acid; 1-oxa-4,7,10-triazacyclododecane-N,N',N"-triacetic acid; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis{3-(4-carboxyl)-butanoic acid}; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(acetic acid-methyl amide); 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(methylene phosphonic acid); and derivatives thereof.

[C039] 39. The MRI contrast-enhancing agent according to claim 37, wherein the poly(amino acid) comprises a number of amino acid residues in a range from about 100 to about 650.

[C040] 40. The MRI contrast-enhancing agent according to claim 37, wherein the poly(amino acid) has a persistence length from about 100 to about 600 angstroms.

[C041] 41. The MRI contrast-enhancing agent according to claim 37, wherein the chelating moieties are diethylene triamine pentaacetic acid.

[C042] 42. The MRI contrast-enhancing agent according to claim 37, wherein the paramagnetic ions are selected from the group consisting of ions of transition metals, rare earth metals, and actinide elements.

[C043] 43. The MRI contrast-enhancing agent according to claim 37, wherein the paramagnetic ions are selected from the group consisting of Gd^{3+}, Dy^{3+}, and a mixture thereof.

[C044] 44. An MRI contrast-enhancing agent comprising a poly(amino acid) conjugated with chelating moieties that form coordination complexes with paramagnetic ions; wherein the poly(amino acid) is a copolymer of at least a first type of amino acid selected from the group consisting of histidine, arginine, asparagine, and glutamine; and at least a second type of amino acid selected from the group consisting of glutamic acid and aspartic acid; and wherein at least about 90 percent of amino acid residues of the the poly(amino acid) are conjugated with the chelating moieties.

[C045] 45. An MRI contrast-enhancing agent comprising a poly(amino acid) conjugated with chelating moieties that form coordination complexes with paramagnetic ions; wherein the poly(amino acid) is a copolymer of at least a first type of amino acid selected from the group consisting of lysine, histidine, arginine, asparagine, and glutamine; and a second type of amino acid of aspartic acid; and wherein at least about 90 percent of amino acid residues of the poly(amino acid) are conjugated with the chelating moieties.

[C046] 46. The MRI contrast-enhancing agent according to claim 44, wherein the chelating moieties are selected from the group consisting of diethylene triamine pentaacetic acid; 1,4,7,10-tetraazacyclododecane-N,N',N",N'"-tetraacetic acid; p-isothiocyanatobenzyl-1,4,7,10-tetraazacyclododecane-1,4,7,10-tetraacetic acid; 1,4,7,10- tetraazacyclododecane-N,N',N"-triacetic acid; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(2-propionic acid); 3,6,9-triaza-12-oxa-3,6,9-tricarboxymethylene-10-carboxy-13-phenyl-tridecanoic acid; 1,4,7-triazacyclononane-N,N',N"-triacetic acid; 1,4,8,11-tetraazacyclotetradecane-N,N',N",N'"-tetraacetic acid; triethylene tetraamine hexaacetic acid; trans-1,2-diaminohexane tetraacetic acid; 1,4,7,10-tetraazacyclododecane-1-(2-hydroxypropyl)4,7,10-triacetic acid; trans-cyclohexane-diamine tetraacetic acid; trans(1,2)-cyclohexane dietylene triamine pentaacetic acid; 1-oxa-4,7,10-triazacyclododecane-N,N',N"-triacetic acid; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis{3-(4-carboxyl)-butanoic acid}; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(acetic acid-methyl amide); 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(methylene phosphonic acid); and derivatives thereof.

[C047] 47. The MRI contrast-enhancing agent according to claim 44, wherein the poly(amino acid) comprises a number of amino acid residues in a range from about 100 to about 650.

[C048] 48. The MRI contrast-enhancing agent according to claim 44, wherein the poly(amino acid) has a persistence length from about 100 to about 600 angstroms.

[C049] 49. The MRI contrast-enhancing agent according to claim 44, wherein the chelating moieties are diethylene triamine pentaacetic acid.

[C050] 50. The MRI contrast-enhancing agent according to claim 44, wherein the paramagnetic ions are selected from the group consisting of ions of transition metals, rare earth metals, and actinide elements.

[C051] 51. The MRI contrast-enhancing agent according to claim 44, wherein the paramagnetic ions are selected from the group consisting of Gd^{3+}, Dy^{3+}, and a mixture thereof.

[C052] 52. The MRI contrast-enhancing agent according to claim 45, wherein the chelating moieties are selected from the group consisting of diethylene triamine pentaacetic acid; 1,4,7,10-tetraazacyclododecane-N,N',N",N'"-tetraacetic acid; p-isothiocyanatobenzyl-1,4,7,10-tetraazacyclododecane-1,4,7,10-tetraacetic acid; 1,4,7,10- tetraazacyclododecane-N,N',N"-triacetic acid; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(2-propionic acid); 3,6,9-triaza-12-oxa-3,6,9-tricarboxymethylene-10-carboxy-13-phenyl-tridecanoic acid; 1,4,7-triazacyclononane-N,N',N"-triacetic acid; 1,4,8,11-tetraazacyclotetradecane-N,N',N",N'"-tetraacetic acid; triethylene tetraamine hexaacetic acid; trans-1,2-diaminohexane tetraacetic acid; 1,4,7,10-tetraazacyclododecane-1-(2-hydroxypropyl)4,7,10-triacetic acid; trans-cyclohexane-diamine tetraacetic acid; trans(1,2)-cyclohexane dietylene triamine pentaacetic acid; 1-oxa-4,7,10-triazacyclododecane-N,N',N"-triacetic acid; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis{3-(4-carboxyl)-butanoic acid}; 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(acetic acid-methyl amide); 1,4,7,10-tetraazacyclododecane-1,4,7,10-tetrakis(methylene phosphonic acid); and derivatives thereof.

[C053] 53. The MRI contrast-enhancing agent according to claim 45, wherein the poly(amino acid) comprises a number of amino acid residues in a range from about 100 to about 650.

[C054] 54. The MRI contrast-enhancing agent according to claim 45, wherein the poly(amino acid) has a persistence length from about 100 to about 600 angstroms.

[C055] 55. The MRI contrast-enhancing agent according to claim 45, wherein the chelating moieties are diethylene triamine pentaacetic acid.

[C056] 56. The MRI contrast-enhancing agent according to claim 45, wherein the paramagnetic ions are selected from the group consisting of ions of transition metals, rare earth metals, and actinide elements.

[C057] 57. The MRI contrast-enhancing agent according to claim 45, wherein the paramagnetic ions are selected from the group consisting of Gd^{3+}, Dy^{3+}, and a mixture thereof.